

#_ Core Shell

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(Based on slides from Daniel Kessler, Douglas Wong, Sahil Hasan, Stefan Kuklinsky)

Logistics

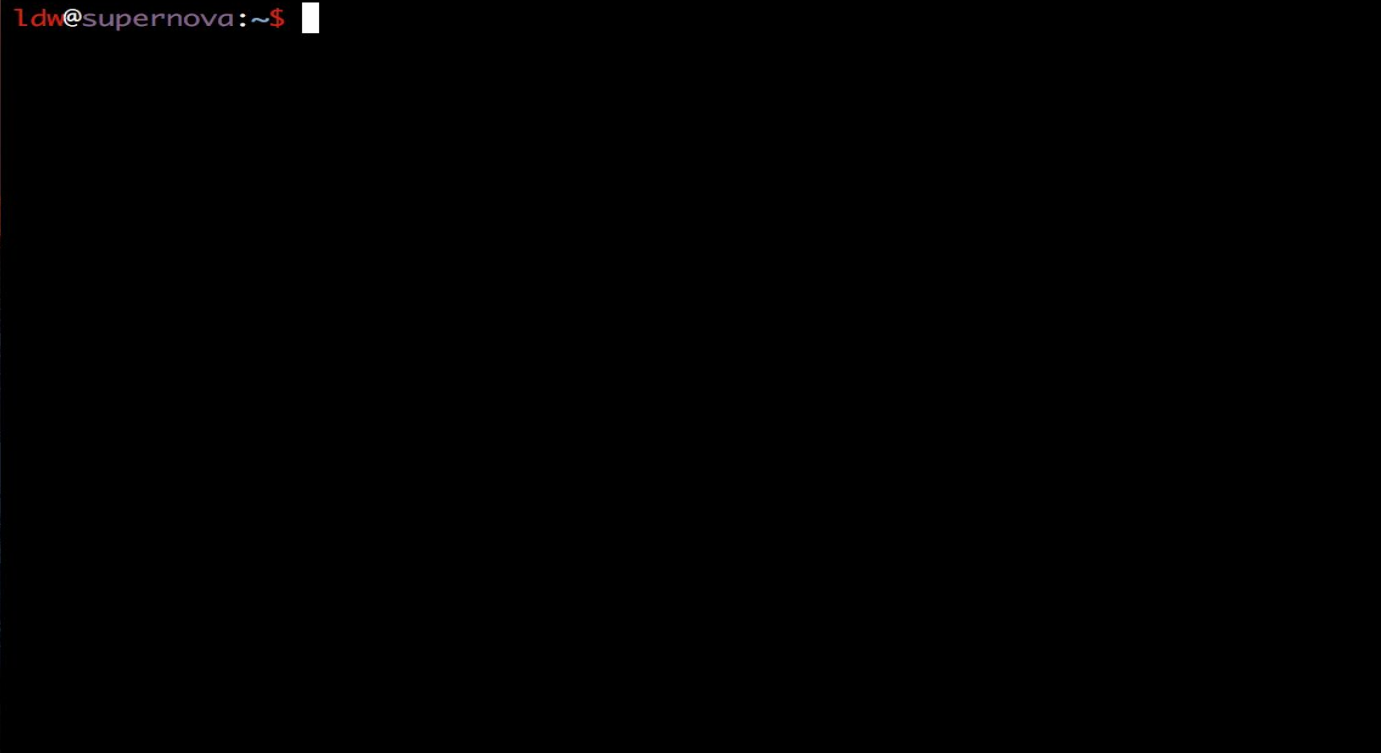
- Lab 3 Released @ decal.ocf.io
- Ask questions in [#decal-general](#) on the OCF chat network.
 - ocf.io/slack
 - ocf.io/discord
 - ocf.io/irc
 - ocf.io/matrix

Today

- SSH
- Files, Pipes, and Redirection
- Tmux
- Vim

Shell

```
ldw@supernova:~$
```



Why use the shell?

- Can make you more productive
- Easier to automate - do work without lifting a finger!
- Sometimes necessary

Is it unethical for me to not tell my employer I've automated my job?



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I currently work on a legacy system for a company. The system is really old - and although I was hired as a programmer, my job is pretty much glorified data entry. To summarise, I get a bunch of requirements, which is literally just lots of data for each month on spreadsheets and I have to configure the system to make it work, which is basically just writing a whole bunch of SQL scripts.



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It's not quite as simple as that, because whoever wrote the system originally really wrote it backwards, and in fact, the analysts who create the spreadsheets actually spend a fair bit of time verifying my work because the process is so tedious that it's easy to make a mistake.

As you can guess, it is pretty much the most boring job ever. However, it's a full time job with decent pay, and I work remotely so I can stay home with my son.

So I've been doing it for about 18 months and in that time, I've basically figured out all the traps to the point where I've actually written a program which for the past 6 months has been just doing the whole thing for me. So what used to take the last guy like a month, now takes maybe 10 minutes to clean the spreadsheet and run it through the program.

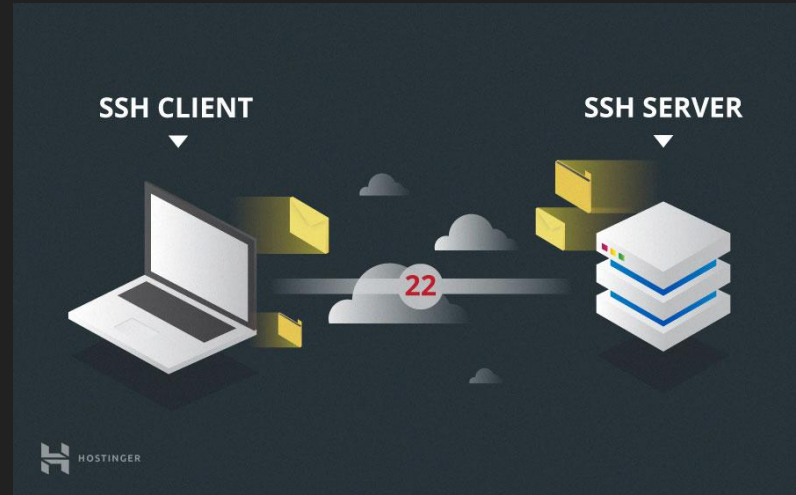
<https://workplace.stackexchange.com/q/93696>

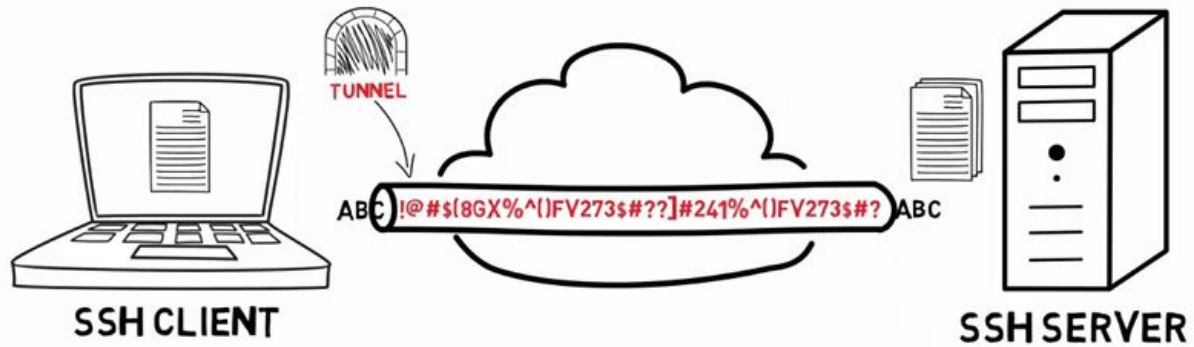
Common Shells

- Bash (Bourne-again shell)
- Zsh (Z shell)
- Bunch of other less common ones (dash, csh, tcsh, **fish**, etc.)

SSH (Secure Shell)

- Lets you log in to a remote computer
- `ssh <user>@<remote>`





Basic File management

- `cp [source] [target]`
- `mv [source] [target]`

`man [command]`

Moving around the filesystem

- Two ways of referencing a file: absolute and relative
 - `/home/t/ta/tanx/file`
 - `~/file`
 - `.`
 - `..`
- Absolute paths always start with `/`

Efficient shell

- Replaying commands: !!
- Argument substitution: !:1
 - Grab last argument: !\$

MAKE ME A SANDWICH.

SUDO MAKE ME
A SANDWICH.



WHAT? MAKE
IT YOURSELF.

OKAY.



Demo



demo — -bash — 56x24

```
[tanx:demo Tanx$ echo "Make me a sandwich"
Make me a sandwich
[tanx:demo Tanx$ sudo !!
sudo echo "Make me a sandwich"
Make me a sandwich
[tanx:demo Tanx$ touch file.txt
[tanx:demo Tanx$ mv !:1 bettername.txt
mv file.txt bettername.txt
[tanx:demo Tanx$ ls
bettername.txt
tanx:demo Tanx$
```

Pipe

- | (called a pipe)
- Utility for chaining commands together

cat people_names

cat people_names

Alicia Fuentes
Jo-Ting Losev
Elena Edmonds
Naydene Cabral
Dato Rosengren
Fernanda Serrano
Emiliano Wenk
Larry Lapin
Jakub Gondos
Derek Kazanin
...

Standard output (your
screen)

cat people_names | grep Anna

cat people_names

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Jo-Ting Losev
Elena Edmonds
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Fernanda Serrano
Emiliano Wenk
Larry Lapin
Jakub Gondos
Derek Kazanin
...

grep Anna

Anna Choi
Anna Menkov
Annabel Sun
Anna Hosking
Anna Holzdeppe
Anna Rosario
Anna Jaskolka
Anna Prucksakorn
Anna Tomic
Annari Simmonds
...

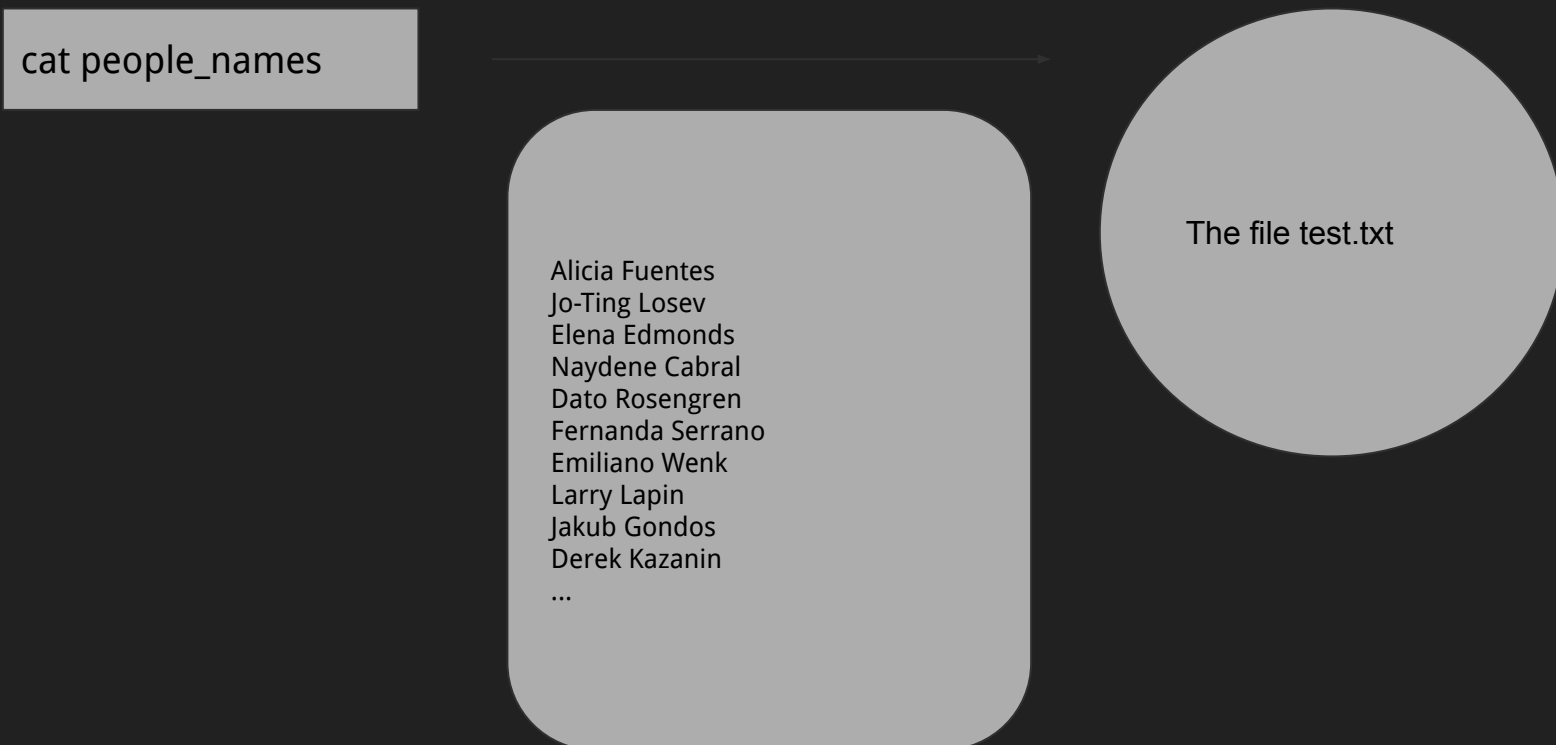
Standard output
(your screen)

Redirect

- `stdin, stdout`
- `>`
- `<`

cat people_names > test.txt

cat people_names



A diagram illustrating the command 'cat people_names > test.txt'. On the left, a rectangular box contains the command. An arrow points from this box to a large rounded rectangle in the center, which represents the output of the command. This rounded rectangle contains a list of names. To the right of the rounded rectangle is a circle representing the file 'test.txt'.

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Derek Kazanin
...

The file test.txt

grep Anna < people_names > output.txt



Editors

A screenshot of a terminal window displaying the Vim startup screen. The window has a title bar at the top with "1 [No Name]" on the left and a close button "X" on the right. Below the title bar, there's a status line showing "1" followed by a cursor. The main area contains the following text:

VIM - Vi IMproved

version 8.0.550

by Bram Moolenaar et al.

Modified by pkg-vim-maintainers@lists.alioth.debian.org

Vim is open source and freely distributable

Help poor children in Uganda!

type :help iccf<Enter> for information

type :q<Enter> to exit

type :help<Enter> or <F1> for on-line help

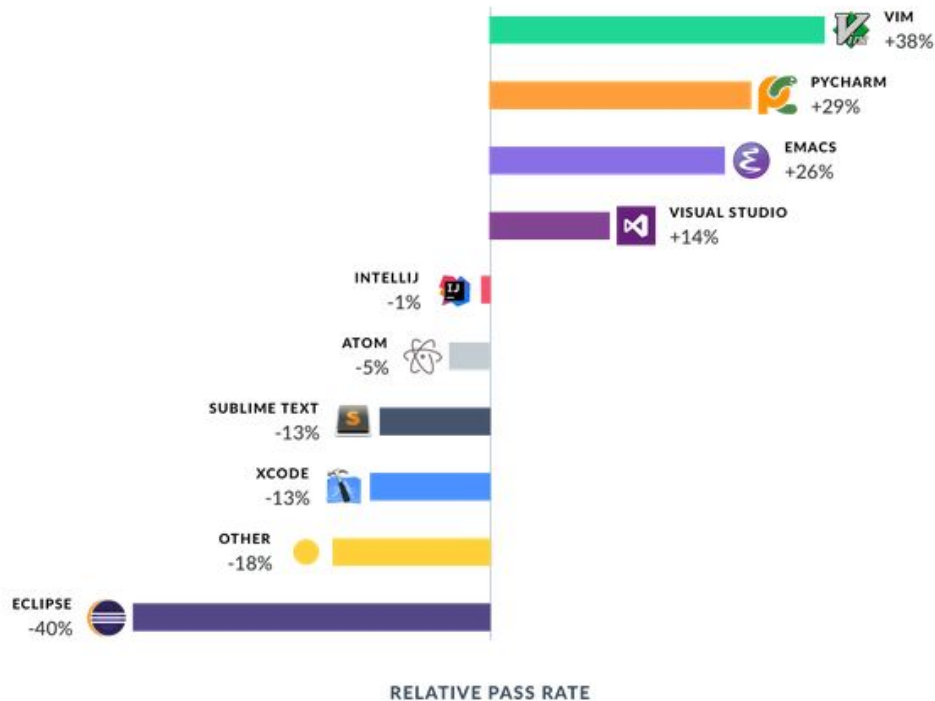
type :help version8<Enter> for version info

The bottom of the window features a status bar divided into three sections: "NORMAL" on the left, "[No Name]" in the middle, and "100% 0:1" on the right. On the far left edge of the terminal window, there are several blue tilde (~) symbols arranged vertically.

Common Editors

- Vim
- Emacs
- Nano (easy to use)

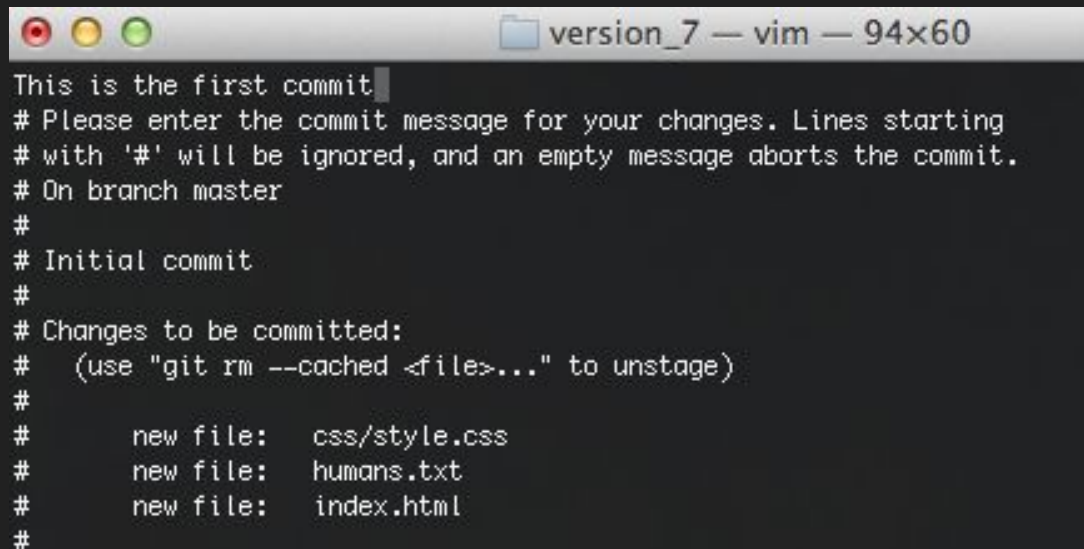
Triplebyte Technical Interview Pass Rate by Editor



<https://triplebyte.com/blog/technical-interview-performance-by-editor-os-language>

Why vim?

- Available everywhere
- Productivity!



```
This is the first commit
# Please enter the commit message for your changes. Lines starting
# with '#' will be ignored, and an empty message aborts the commit.
# On branch master
#
# Initial commit
#
# Changes to be committed:
#   (use "git rm --cached <file>..." to unstage)
#
#       new file:   css/style.css
#       new file:   humans.txt
#       new file:   index.html
#
```

Basics of vim

- Moving around
- Yank and paste
- Panes

Tmux (Terminal Multiplexer)

- One terminal to potentially many
- Add windows to your terminal
- Save your sessions
- Screensharing, but better

Demo